What we know;

Standard Form - $y = ax^2 + bx + c$
Factored Form - $y = a(x - s)(x - r)$
Vertex Form - $y = a(x - h)^2 + k$

Students will learn;

How to convert FROM **Standard** form to **VERTEX** form

Pg. 323 # 1
Pg. 331 # 5abcd, 6bc, 7

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Example 1: Complete the square of $y = 2x^2 + 8x - 15$

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Example 1: Complete the square of $y = 2x^2 + 8x - 15$

Partial Factor $y = 2[x^2 + 4x] - 15$

$(b/2)^2$ - c value $y = 2[x^2 + 4x + 4 - 4] - 15$

create the perfect square $y = 2[(x+2)^2 - 4] - 15$

distributive property $y = 2(x+2)^2 - 8 - 15$

collect like terms $y = 2(x+2)^2 - 23$

STATE (h, k) $(-2, -23)$ (h, k)

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Example 2: Express $y = 3x^2 + 9x - 2$ in vertex form.

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Example 2: Express $y = 3x^2 + 9x - 2$ in vertex form.

$y = 3(x^2 + 3x) - 2$

$\left(\frac{3}{2}\right)^2 (1.5)^2$

$= 2.25$

$y = 3(x^2 + 3x + 2.25 - 2.25) - 2$

$y = 3(x + 1.5)^2 - 2.25) - 2$

$y = 3(x+1.5)^2 - 6.75 - 2$

$y = 3(x+1.5)^2 - 8.75$

$(-1.5, -8.75)$

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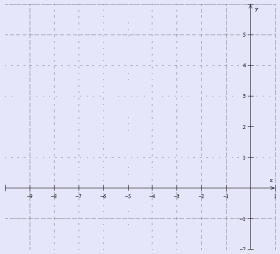
Example 3: Express $y = 1/3x^2 + 6x - 2$ in vertex form.

a) Complete the square to express the relation in vertex form.



b) Graph the relation.

i) vertex:
ii) direction of opening:
iii) axis of symmetry:
iv) optimum value:
v) maximum or minimum:
vi) y-intercept:
vii) shape:

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Example 3: Express $y = 1/3x^2 + 6x - 2$ in vertex form.

a) Complete the square to express the relation in vertex form.

$y = \frac{1}{3}(x^2 + 18x) - 2$

$y = \frac{1}{3}(x^2 + 18x + 81 - 81) - 2$

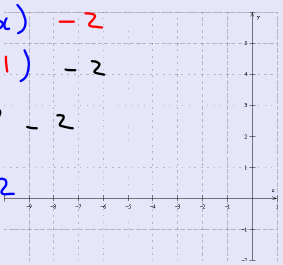
$y = \frac{1}{3}[(x+9)^2 - 81] - 2$

$y = \frac{1}{3}(x+9)^2 - \frac{81}{3} - 2$

$y = \frac{1}{3}(x+9)^2 - 27 - 2$

$y = \frac{1}{3}(x+9)^2 - 29$

$(-9, -29)$



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Homework

Handout q. p270 and 271
q. 7ace, 11, 12
Pg. 331 # 5ef, 7ef

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May 8-1:59 PM